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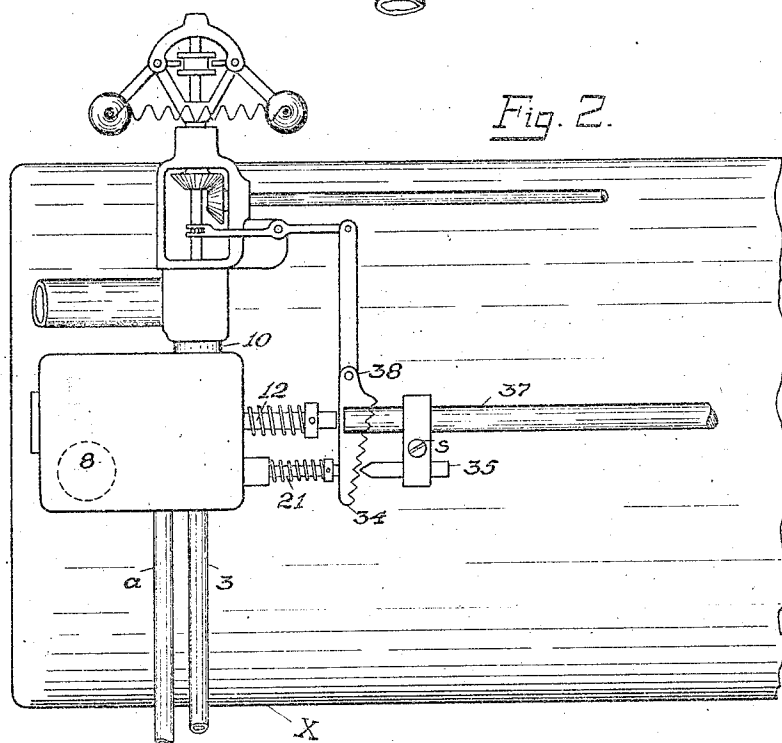
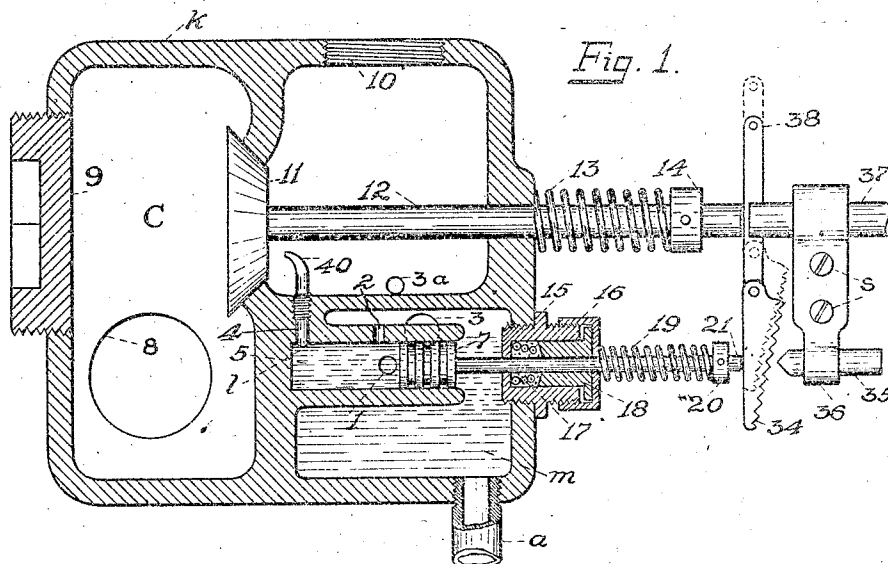
PATENTED JUNE 25, 1907.

H. J. PODLEŠÁK & T. E. PODLESAK.

FUEL FEEDING DEVICE FOR INTERNAL COMBUSTION MOTORS.

APPLICATION FILED DEC. 6, 1904.

4 SHEETS—SHEET 1.



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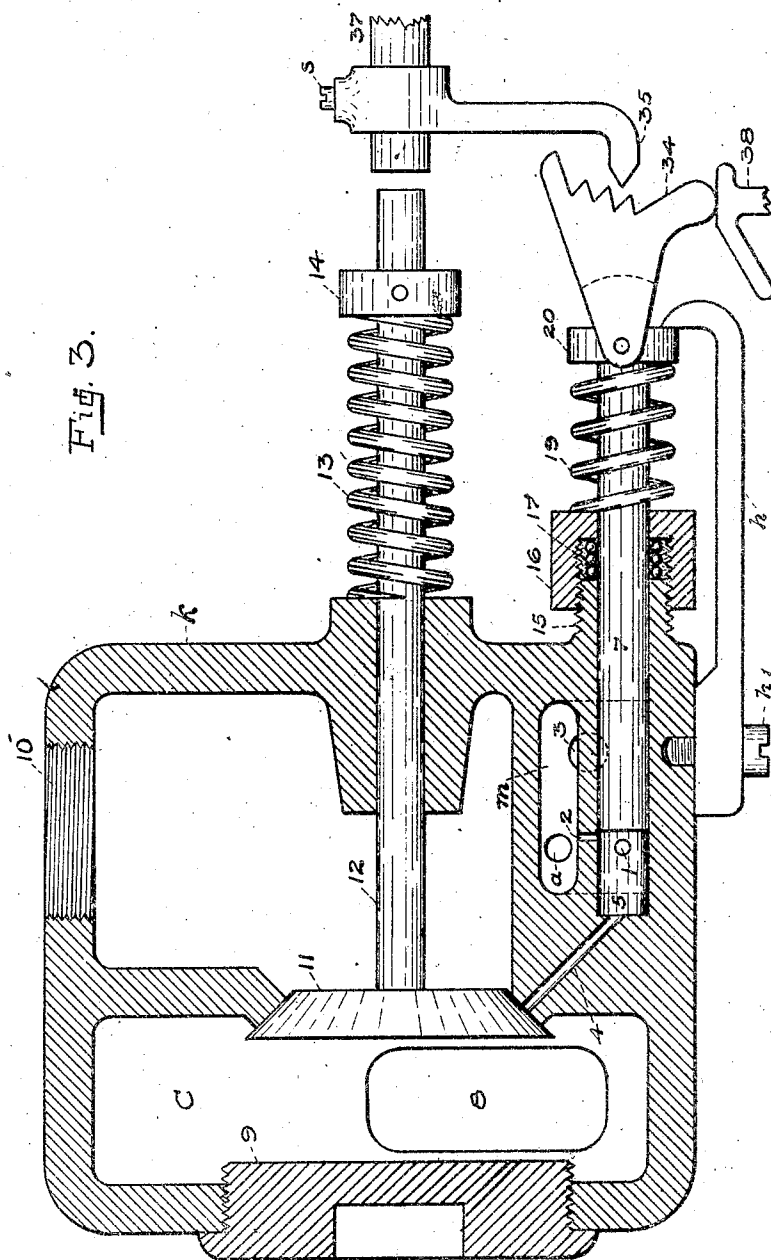
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4 SHEETS—SHEET 2.

Fig. 3.



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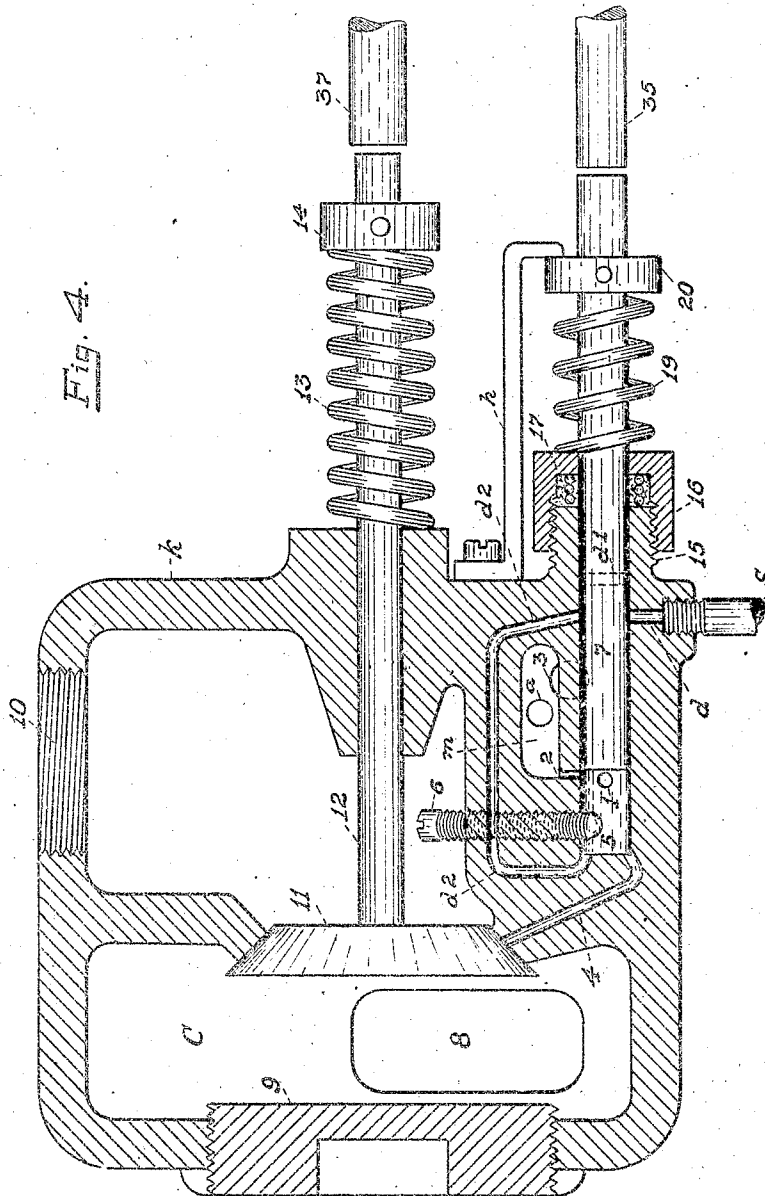
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4 SHEETS—SHEET 3.



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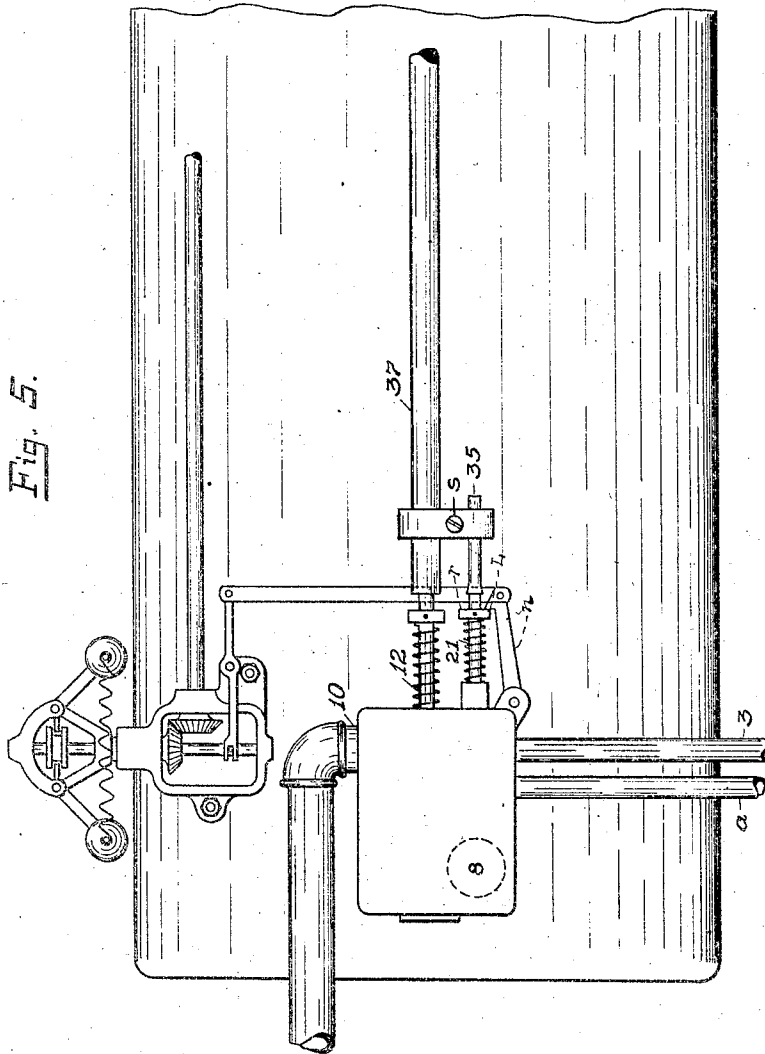
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APPLICATION FILED DEC. 8, 1904.

4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

HENRY JOSEPH PODLEŠÁK, OF CHICAGO, ILLINOIS, AND TESLA E. PODLESAK, OF MORRISTOWN, NEW JERSEY.

FUEL-FEEDING DEVICE FOR INTERNAL-COMBUSTION MOTORS.

No. 858,022.

Specification of Letters Patent.

Patented June 25, 1907.

Application filed December 6, 1904. Serial No. 235,770.

To all whom it may concern:

Be it known that we, HENRY JOSEPH PODLEŠÁK and TESLA EMIL PODLESAK, citizens of the United States, and residing at Chicago, county of Cook, State of Illinois, and Morristown, county of Morris, State of New Jersey, respectively, have invented certain new and useful Improvements in Fuel-Feeding Devices for Internal-Combustion Motors, of which the following is a clear and precise description, reference being had to the several views of the accompanying drawings.

Our invention relates to improvements in internal combustion hydro-carbon motors, the object being to provide means for positively feeding the requisite quantity of fuel for each charge and to prevent feeding any excess of fuel for the charges.

With our fuel feeding devices, we are enabled to positively feed the requisite quantity of fuel regardless of the speed of the motor, the degree of suction, or the length of time the fuel feeding outlet is kept open, without danger of flooding the motor with fuel, or not feeding enough of fuel.

Our device can be used with stationary and portable motors of either the two-cycle or the four-cycle type.

To attain the advantages set forth we so construct our device as to first supply fuel, from a reservoir, into a fuel receptacle of a predetermined capacity, then to shut off the supply of fuel to the receptacle, and thereafter to discharge the requisite quantity of fuel from the receptacle into the charge of air, the supply of fuel remaining shut off throughout the period of feeding discharging fuel into the charge of air, as will be clearly shown in the following description, reference being had to the several drawings in which:

Figure 1 is a vertical view, partly sectional, of a form of our device especially adapted to feed crude oils, in a form of spray, into the vaporizing chamber, as the charge of air is drawn through there. Fig. 2 shows this form attached to a motor provided with a throttling type of governor for speed regulation, but this form may be used with motors using the hit-or-miss mode of speed regulation equally well. Fig. 3 is a vertical view, partly sectional, of a form especially adapted to vehicle motors, such as automobile, marine, and traction motors. This form is similar to that of Fig. 1, except that the fuel

feeding outlet is normally kept closed, to prevent spilling of fuel, and is opened only at the time of feeding. Fig. 4 is a vertical sectional view of a form in which the fuel is discharged from the receptacle by air pressure. Fig. 5 shows a device attached to a motor provided with a hit-or-miss type of speed governor.

In the several drawings the similarly functioned principal parts are designated by the same numerals or characters.

Referring to Fig. 1, *k* is a hollow shell or casing, provided with an air intake 10, a valve seat for air valve 11, a mixing or combustion chamber *c* which communicates with the cylinder of the engine through the opening 8. Within this casing *k* is also a hollow chamber *m*, partly filled with fuel, in which is a fuel receptacle 5, of a suitable determined capacity. The fuel inlet 1 serves to afford communication between the fuel receptacle 5, and the fuel reservoir *m* for the purpose of filling the receptacle 5 with fuel from *m*. The piston or plunger 7 serves, by its reciprocating movements, to open and shut the inlet 1 and overflow outlet 2 and to force the requisite quantity of fuel from receptacle 5, through fuel feed outlet 4 and the atomizing nozzle 40. The fuel is supplied through *a* and surplus is drained back to fuel tank by pipe 3.

The operation is as follows: The reservoir *m* being filled with fuel and the plunger 7 in its normal position, as shown, the cavity, or cylinder, 5 will be filled through opening 1; then, upon the movement of the plunger 7, through movement of valve rod 37, the plunger, moving to the left, Fig. 1, will pass over inlet 1 and overflow outlet 2 and cover them, shutting off the egress and ingress of fuel from *m* to 5. Upon further movement of the plunger, a greater part of the fuel, contained in the cylindrical receptacle, will be forced out through nozzle 40, into the charge of air entering through 10. It will be noticed that a certain quantity of fuel is thus isolated from the main supply and thereafter a desired part of this isolated quantity of fuel is discharged or fed into the charge of air, and that during this feeding period no further supply or addition of fuel can enter the receptacle 5. Upon the return movement of valve rod 37 the plunger 7 is brought back to its normal position by spring 19, opening the inlet 1 and overflow outlet 2, thus

allowing the receptacle to be again filled from reservoir *m* for the next charge. The wedge shaped block, 34, which is serrated on one of the engaging sides, together with its co-operative parts, serve to adapt this form of our device to throttling mode of speed regulation, the governor in this case being arranged to throttle the charge of air by increasing or decreasing the size of the air passage, and correspondingly increase or decrease the travel or movement of the plunger, 7, by lowering or raising the wedge block 34, respectively; as will be apparent, the longer the travel of the plunger 7, after the egress of fuel through 7, has been closed, the more fuel will be discharged out of the receptacle 5. The extent of the movement of plunger 7 is further augmented by the adjustments of detent 35. With motors using the hit-or-miss mode of speed regulation the adjustment for the proper length of travel of the plunger 5 is effected by the setting of this detent 35. Fig. 2 shows this form of the device attached to a motor provided with a throttling type of governor.

Fig. 3 shows a form that is especially adaptable to motors used for propelling vehicles or such motors that are apt to be rocked while working. In this form the fuel receptacle 5 is provided with fuel inlet 1, overflow outlet 2, and fuel feed outlet 4, this latter terminating in a valve seat and is held normally closed by a valve, to prevent spilling of fuel through 4 on excessive rocking or jarring. The arrangement for varying the throw of the plunger 7 differs in form from that shown in Fig. 2 but the operation is same in effect.

Fig. 4 shows a form wherein the plunger 7 serves principally as a valve for opening and closing the fuel inlet 1, and for admitting and shutting off air pressure to and from the receptacle 5, assisting in the feeding to a slight degree only. The extreme in movement of this plunger 7, is adjusted so that the opening *d* through this plunger will come opposite opening *d* and thus form a continuous passage for air under pressure, from pipe *S*, through *d*, *d'* and *d''* and into receptacle 5; when air, under pressure, is thus admitted it will force out the fuel from receptacle 5 through fuel feed outlet 4; the fuel inlet 1 always being closed before the continuous passage between *S* and 5 is established, the fuel in receptacle 5 has no other path to get out except feed outlet 4'. The adjustment of capacity of 5 for requisite quantity of fuel for the charges is effected by screw 6. This form, as shown, is adapted to motors using the hit-or-miss mode of speed regulation.

Fig. 5 shows our device attached to a motor using the hit-or-miss mode of speed regulation, the governor being arranged to raise, by means of levers and connections, when the speed exceeds normal, the hinged hook *n* high enough to engage the lip *L* with collar *r*

and thus prevent the plunger 7 from returning to its normal position, and as no fuel can enter the receptacle 5 unless the plunger is in its normal position, charges of fuel will be missed until the speed becomes normal when the governor will lower the hook, releasing the collar and thus allowing the plunger 7 to return to its normal position, when a charge of fuel will be admitted.

It will be noted that in our device we provide a receptacle of such capacity as will hold the largest quantity necessary for a full charge, that we fill this receptacle with fuel, and then isolate, so to speak, the fuel contained in the receptacle, to prevent any further additions of fuel to, or loss of fuel from the receptacle, and then discharge or feed the requisite quantity of fuel into the charge of air for the explosive charge.

A fuel feeder embodying the features, above pointed out, is susceptible of varied embodiments, and without limiting ourselves to any particular ones.

What we claim as new, and our invention, and desire to secure by Letters Patent is:

1. The combination, in a fuel feeder for internal combustion motors, of a fuel receptacle, provided with fuel feed inlet, overflow outlet, fuel feed outlet, and adapted to contain a predetermined quantity of fuel; a fuel reservoir adapted to supply fuel to said receptacle through said inlet; means for opening and closing said inlet and said overflow outlet at predetermined intervals; and means for forcibly discharging a predetermined quantity of fuel from said receptacle through said fuel feed outlet when the said inlet and said overflow outlet are closed.

2. A casing, provided with an air passage, communicating with the combustion chamber of an internal combustion motor, a fuel receptacle, of a suitably determined capacity, and provided with fuel feed inlet, overflow outlet and fuel feed outlet, said feed outlet communicating with said air passage; a fuel reservoir adapted to supply fuel to said receptacle through said inlet; means for opening and closing alternately and at predetermined intervals said inlet and said overflow outlet; means for forcibly feeding a predetermined quantity of fuel from the receptacle and through said feed outlet at the interval when said inlet and said overflow outlet are closed.

3. An internal combustion motor; a governor operated by the power developed by said motor, a fuel feeder comprising: a fuel receptacle of a suitably determined capacity, and provided with fuel feed outlet, fuel feed inlet, and overflow outlet, means for opening and closing alternately and at predetermined intervals, said inlet and said overflow outlet; means for forcibly feeding a predetermined quantity of fuel from said receptacle through said feed outlet and into the

combustion chamber of said motor, at the interval when said inlet and said overflow outlet are closed; and a means, operatively connected with said governor, and adapted to control the operation of said means for feeding the fuel, as shown and specified.

4. A fuel feeding device, for internal combustion motors, comprising: a fuel receptacle of a suitably determined capacity, and provided with a fuel feed inlet, an overflow outlet, and fuel feed outlet; means for opening and for closing, alternately and at predetermined intervals, said inlet and said overflow outlet; means for forcibly feeding a predetermined quantity of fuel from said receptacle through fuel feed outlet and into a mixing or vaporizing chamber, at the intervals when said inlet and said overflow

outlet are closed; an internal combustion motor, suitably adapted to receive, into its combustion chamber, combustible charges from said fuel feeding device; governor operated by the power developed by said motor; and means operatively connected with said governor and adapted to control the operation of said fuel feeding device.

In testimony whereof we subscribe our names in the presence of subscribing witnesses.

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Witnesses:

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